Q & A Tempe Forum Aviation Issues Survey

A. The Tempe-Phoenix Intergovernmental Agreement (1994) on Sky Harbor flight noise mitigation is about compliance with departure headings over the Tempe Town Lake out to the SR101/202 and equalization of departures east and west of the airport.

1. It is very few departures on the North Runway. Why are west departures over the congested area of Downtown Phoenix and the majority of East Departures are over the congested and populated areas of Downtown Tempe and not through Curry Road and into the Reservation? West departures favor the runways south of the riverbed and are in line with the River Base and industrial areas of Phoenix.
   The center runway (7L-25R) is mainly used to depart aircraft, the north (8-26) and south (7R-25L) runways are used for arriving aircraft. All departures to the east need to follow converging headings out to 4-DME, (distance east departures need to stay on headings that keep the aircraft over the Tempe Town Lake & the Salt River riverbed).

2. Equalization: According to the Airport the FAA is responsible for this choice. They claim its wind direction, but departures are favored on the South Runways and very few departures on the North Runway. I feel any West departures would be over the congested area of Downtown Phoenix. The majority of East Departures are over the congested and populated areas of Downtown Tempe and not through Curry Road and into the Reservation. The departures from the west favor the south runways and in line with the River Base and industrial areas of Phoenix. This needs to be addressed.
   The direction runways are operated are determined by prevailing winds, and maximum allowable tail wind component.

3. Equalization depends primarily on the wind direction and the prevailing winds here favor that pattern. This doesn't seem to be an issue?
   There is an element of choice during stagnant weather or when there little or no wind.

4. What is the percentage of departures east vs. west? Phoenix-Mesa Gateway Airport has an "International" designation. Is there capacity to move some of the air traffic there?
   Overall about 45% east and 55% going west on an annual basis.

5. Are private residences going to have first consideration for quiet zones or are you going to worry about all the downtown construction?
   There are no quiet zones for aircraft in Tempe, but a person in a residential zone cannot create more than 45 dB(A) measured at either the property line or the area of the property affected by the noise emission.

6. Since departures are to be over the river bottom/Tempe Town Lake from long-standing ordinances, why are departures and landings now drifting north?
   Drift in flow north may be caused short term by weather, but in general departures bound for north or northeastern route destination tend to anticipate a northernly turn before reaching 4-DME

7. Equalization of departures to the east or west is dependent on the wind direction, so that doesn't seem to be something that could be changed without possibly compromising flight safety?
   The issue of flight safety in determining departures going east of west is related to the maximum allowable tailwind component aircraft can safely take-off from the airport.

8. Does this create potentially adverse conditions for air service and departure flows?
   The 4-DME is considered as a constraint on air traffic efficiency in terms of delaying turns directly towards the first navigation point on a chosen departure route that do not align with the centerline of the departure runway. Propeller aircraft are directed on 120 and 60 degrees directly after take-off to separate them from the faster jets over the riverbed.

9. Why has the route been allowed to move outside the river bottom route?
   Air traffic control may allow a departure outside the river bottom for air traffic or weather reasons.

10. It appears that the planes departing east must fly over the Salt Riverbed according to the IGA. However, this seems to have been modified, allowing planes to swing wide, outside of the riverbed, as long as they fly over Sparky before turning. Has the procedure been changed?
    The FAA included a (GPS) waypoint "SPRKY" in area navigation (RNAV) departure routes in the controversial September 18, 2014 re-routing publication. The waypoint has improved compliance with the (4-DME) reverbed departure procedure memorialized in the 1994 IGA, but because SPRKY was designed as a "flyover waypoint" the navigation equipment in the aircraft might not react the same way. Normally the FAA include "fly-by waypoints" which the aircraft electronics anticipate and turn within a set distance to the waypoint. The SPRKY does not give signals to the aircraft automated navigation to change course before the aircraft is over it, so technology can result in aircraft flying by SPRKY and align with the other fly-by waypoints after 4-DME set up to assist aircraft to get to the destination navigation points on a preferred route. Also, we still have classic procedures (SIDs) in place at the airport, which means that a few departures are conducted by traditional visual separation out to 4-DME/ the SR202/101 intersection.

11. Why am I seeing so many planes taking off in the morning hours flying North of Weber? Most that I have observed have been Southwest planes and FedEx.
    During busy morning hours aircraft that are stacked according to destination so necessary lateral separation can be maintained. If one aircraft is destined to turn north when leaving the riverbed, the next goes straight or turns south. The need for separation and the aircraft navigation systems anticipation of destination waypoints cause turn anticipation but leave the vast majority of departures inside a Gate set up to measure departure deviations.

B. Arrival Flow Management: The runways are most of the year operated in east flow during mornings and west flow in the afternoons, unless the air traffic flow is changed because of winds and bad weather.

12. Why has there been a significant amount of air traffic over the past year, and small planes flying over my house to get to the airport to land?
    South Tempe is below the area descents are vectored in north towards the airport to land from the east, and smaller aircraft that are fed into the flow or transitions through PHX airspace to airports located further north, SDL, DVT.
13. Why do smaller planes now fly so low now? This is something new, and it is the same planes flying from smaller towns to Sky Harbor. I have tracked them on an app.
    Most of the smaller aircraft are transitioned through PHX airspace below the altitudes used by incoming traffic to the airport.
14. At time I see and hear aircraft come from the south east - coming diagonally across Tempe and then banking for arrival. Why is that?
    This is done by air traffic controllers to fit aircraft into the arrival flow close to landing. It is all about keeping aircraft separated with a required, but minimum amount separation to make the traffic flow as safe and efficient as possible.
15. Why are not arrivals equalized and a general night time curfew implemented? The FAA is not concerned about public health and environmental quality. Noise and other environmental pollutants need to be regulated by some combination of EPA and local oversight.
    The IGA only require equalization of jet and large turbo prop departures on an annual basis. The airport cannot implement access restrictions after the 1990 Airport Noise & Capacity Act was signed into law. The airport has a restriction at night on engine run-ups.
16. Can anything be done with the evening flights (military I believe) when aircraft are so low that it makes my entire house shake? I do not appreciate that because it also makes all the neighborhood dogs freak out.
    The airport does not have noise abatement flight procedures specific to military aircraft, but some airports in the US has preferred routing alternatives recommended for airlines to use during nighttime hours.
17. Why is it that during the day arriving planes are farther north than in the evening?
    That depends from which direction the incoming traffic is arriving from, e.g. during periods of heavy traffic more aircraft from the north are routed south over the airport to intercept the afternoon and evening (downwind) descent path going east along Elliot Rd. in south Tempe.
18. Regardless of arrivals or departures, why are flights allowed over Tempe from 10pm - 6am? A long-standing agreement was to minimize to none over Tempe at night. This has changed and drifted over the years.
    See answer about curfews, and the elimination of new airport access restrictions with the implementation of 1990 Airport Noise & Capacity Act.

19. The higher number of flights and planes not wanting to lose their place in line for landings, is causing planes to make wide s-curves over our neighborhoods. How can this be addressed?
    This is known as compression when adjustments to rate of descent and speed need to be compensated for by maneuvers to keep aircraft properly separated in the arrival flow to a runway. The air traffic controllers have access to NextGen tools such as Terminal Sequencing and Spacing (TSS) to help limit the controller workload during busy hours and reduce the need for pilots to make late corrective maneuvers to avoid missed approach situations.
20. Is there not a way to keep those arrivals closer to the river as well? I have observed them coming in as far north as McKellips Rd.
    The merging of arrivals from the north and north east arrivals outside Tempe can cause some being cleared by air traffic control to intercept a shorter final to the airport. This is a result of air traffic volumes and air traffic flow management to ensure that minimum separation between aircraft are kept and at the same time accommodate passengers to reach their destination on time.

C. Air Traffic Route Congestion in South Tempe: Routes that follow the same narrow paths over the same neighborhoods both during the mornings and the evenings:

21. I can hear air traffic noise most of the time when I am outside. Sometimes it is so loud as to be very distracting and is a nuisance.
    Vectoring of arrivals to final from a downwind descent require pilots to turn off automation and manually set up the aircraft for landings, which creates more noise compared to a programmed straight in continuous descent with the engines idling.
22. Why cannot the north and south runways be equalized? Now arrivals use both runways but departures mostly south. The aircraft mostly quiet is Air Force1 on takeoff on North Runway. The Airport is generally quiet during major storms, delays or flight cancellations of other major airports. Also, during storm and weather events the airport still favors the south runways for their instrument landings. Why do the airlines fly the worst scenario during a severe storm or wind event before airport closure? The preferred route over downtown Tempe even with a westerly wind during a dust storm. Over a congested area of downtown and major university... only in Arizona!
    Departures appear to use the south runway but most departures using the center runway (7L-25R).
    Departures cleared to stay outside areas of turbulent air and possible micro bursts, follow paths that bring passengers outside weather fronts that pilots can observe on radar in the aircraft. It makes the choice of flight paths unpredictable and difficult to contain for air traffic controllers but depending on where the problem areas are located around the airport, efforts to follow the normal departure headings out to 4-DME should be made to the extent that is possible without ending up flying into bad weather.
23. Why is air traffic incessant directly over my house? The planes come from South Mountain one after another directly over my house. Sometimes we can count 5-6 planes stacked up overhead. The noise is disturbing, especially in the evening hours.

This is because you are located at the end of a busy GPS/RNAV route that bring most of the traffic from airports in South California into south Tempe during evening hours.

24. Are you planning on moving from a narrow path to patterns over central/south Tempe? Paths should stay over the riverbed.
    The IGA lasts until 2044, and the FAA has made assurances to Tempe that the long existing noise mitigation flight procedures over Tempe will be upheld. Narrow flight patterns are a product of GPS area navigation (RNAV), the effect of which are problematic.
25. Because the airport is a City of Phoenix operation why is not as many flights as possible departing and arriving from the west using the northern most runways? I think a slower ascent would possibly lessen noise pollution over Tempe.
    The air traffic flow is depended on wind directions. The north runway (8-26) is the longest runway and with future growth in international traffic or larger and heavier aircraft might increase the demand for using the north runway.
26. Departures in the a.m. seem to be farther north (Guadalupe/ Elliot). Can they be moved further south?
    That option is limited because of incoming routes with aircraft on descent from the southeast that are turned in to land from the west.
27. I live very close to the flight path. The only time I have problem is the occasional time they fly right over my house when the plane doesn't take the normal route. It is understandable that it happens once in a while. If the frequency stays the same I am fine. Can an increase be avoided with future growth in operations?
    Growth in airline operation frequencies caused by more demand for travel during busy hours, impact how often you will experience air traffic over your home, but growth at the airport over recent years has been in passenger volumes with more passenger per operation.
28. Is there not a way that the airlines can stagger their flights a bit more? In the mornings and the evenings there is just one after another, seconds apart. I also worry about our air quality during those times.
    Demand for travel determines the most attractive times of flight and destinations; airlines are in control. There are no extra charges for flying or using the airport during times or days with higher pollution levels.
29. Can a larger portion depart north over the Maricopa Pima Indian Reservation instead of over central Mesa and Tempe?
    Departures with airport destinations in South California are routed south of the airport. Directing more of this traffic north would likely cause delay because of reduced possibility to stage departures to go north, east or south after 4-DME/ the SR202/101 intersection.

D. Questions Outside the Survey Topics:

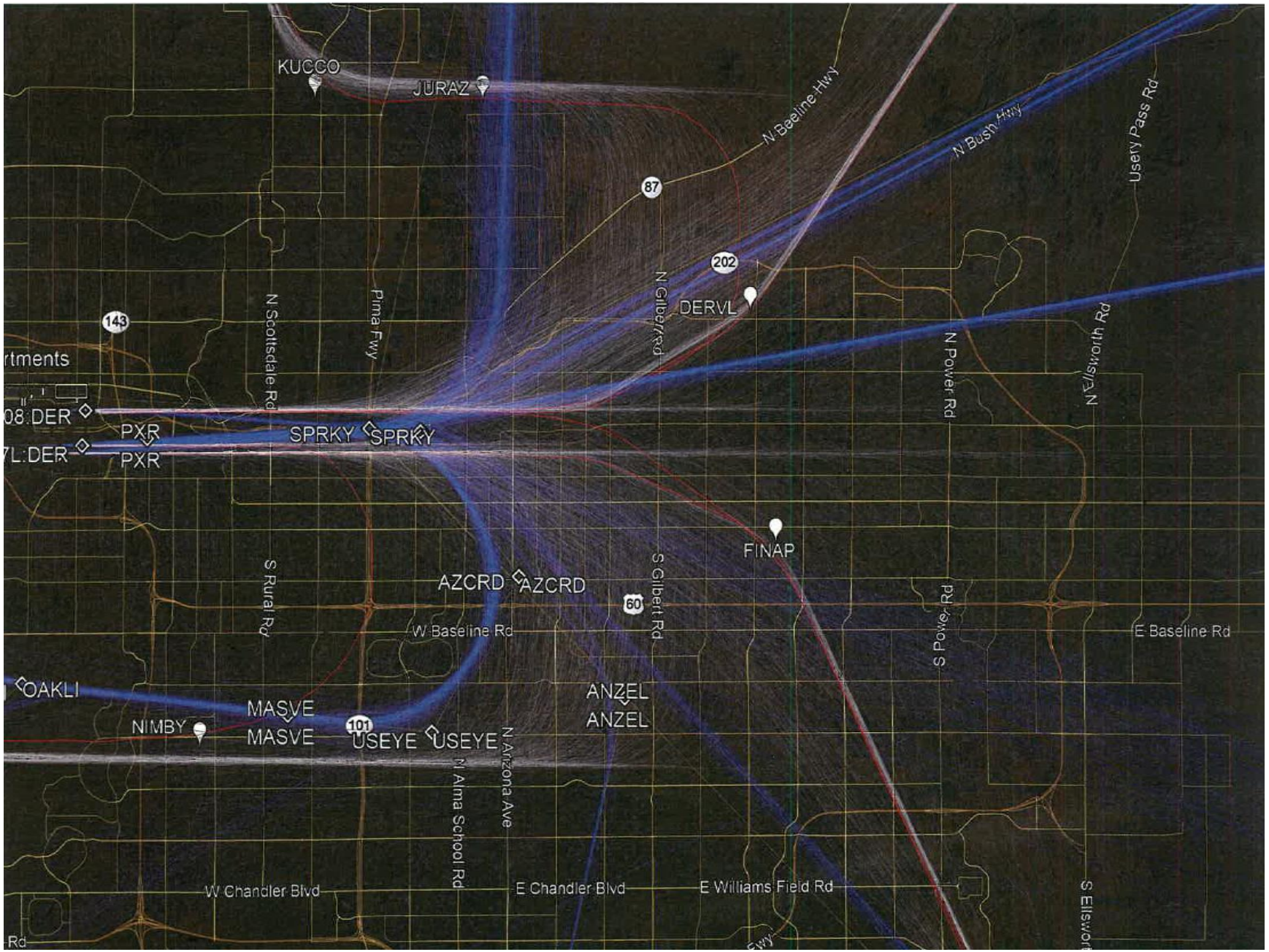
30. I notice low altitude fixed wing & helicopter flights over my neighborhood. These flights may not even have an O&D at Sky Harbor but can be extremely noisy and occur well into the evenings in some cases. What are the rules on private or GA aircraft regarding flight paths, and time of day activity?

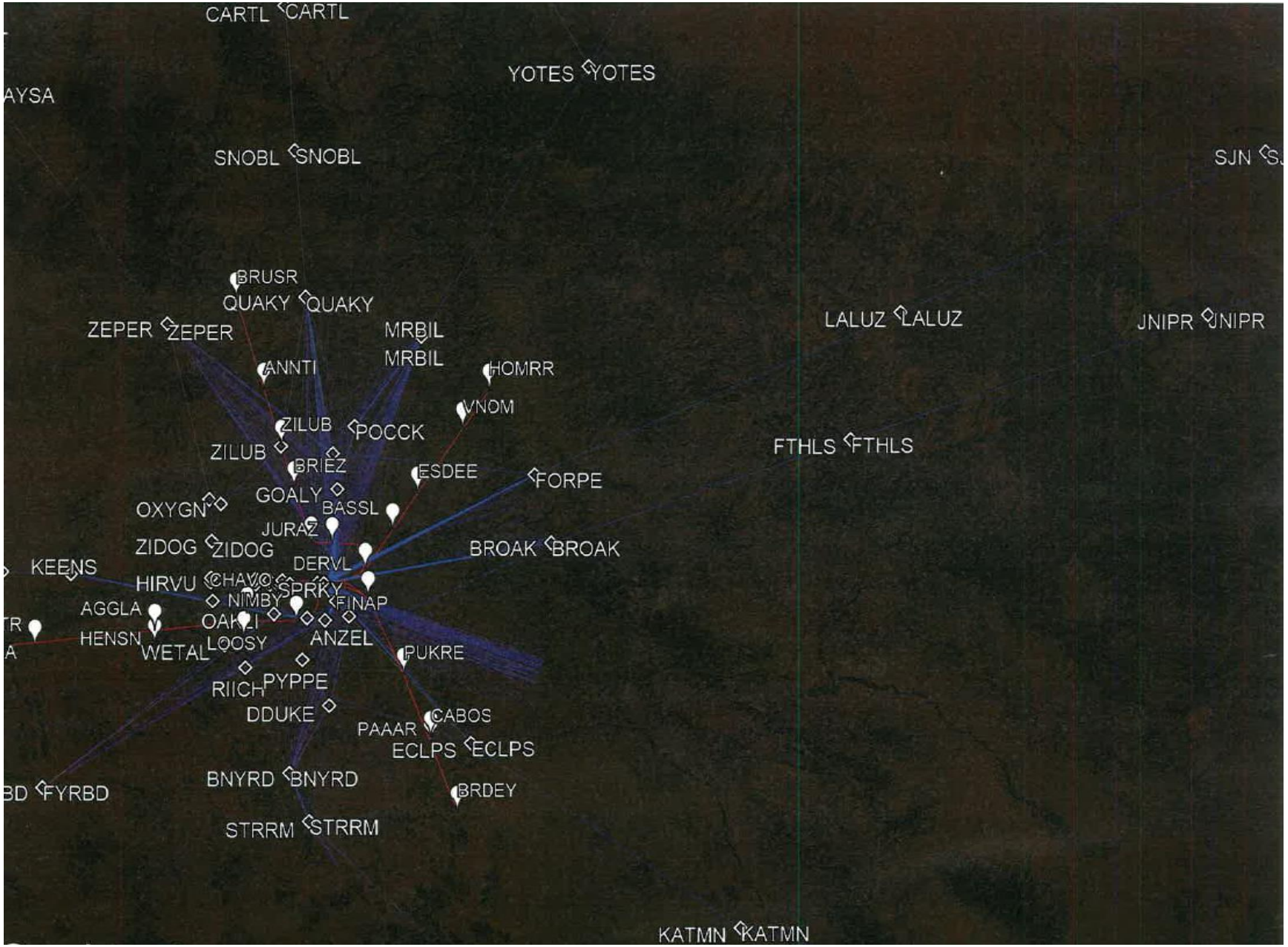
Helicopters and smaller fixed wing aircraft need to stay low to keep required separation to airspace used by large carriers.

31. My windows rattle and shake loudly when helicopters fly over my house. I've made numerous noise complaints but have not heard what I can do to make it stop. Is there anything that can be done to make the helicopters fly higher or over the streets, as opposed to over my house?
    There are established procedures for helicopter operating in the airspace that surrounds Sky Harbor. Typically helicopters need to keep 2,500 feet MSL to keep required separation to airspace used by air carrier aircraft. Tempe has reached out to helicopter operators about keeping flight paths to main arterial roads, which has resulted in positive responses from medical transport helicopter operators.
32. Is there a plan to have more midnight flights leaving or coming? This should be kept to a minimum.
    The airlines are in control of flight schedules, the need to get aircraft back to home destination to prepare for next day production, and to synchronize with connecting flights.
33. Are private residences going to have first consideration for quiet zones or are you going to worry about all the downtown construction? Private homes should be the top priority. Flights should be kept over the riverbed. Businesses/developers want to build there, they know what they're getting.
    There are no quiet zones in Tempe expect the train horn quiet zones that cover railroad crossings in Tempe. The Tempe-Phoenix 1994 Intergovernmental Agreement memorialized a flight procedure to keep air carrier initial climbs east away from populated areas on both sides of riverbed in North Tempe.
34. The recently approved 20-year Sky Harbor plan will directly impact Tempe residents with even additional overhead air traffic. Can the City of Tempe please have a place at the table for these planning sessions? Most Valley cities have an airport in their midst, giving them immediate access to Regional Airport Planning. Tempe is directly at the end of the eastern Phoenix Sky Harbor Runways. Tempe citizens are directly affected by nearly 50% or even more, of the air traffic from our neighboring Phoenix Sky Harbor Airport. Respectively, Tempe must have a place at the table and be included in these planning sessions.
    The City of Phoenix has conducted community stakeholder workshops when preparing the Comprehensive Asset Management Plan (CAMP) for the airport, but a formal process for soliciting public input can first be expected when a more detailed environmental review of impacts is developed under the National Environmental Policy Act, which is triggered by federal actions needed to realize projects included in the plan.
35. My husband & I live a block west of the 101, & between the US 60 & the 202 freeways. So, we aren't sheltered from transportation noise by any means. However, the "normal" aviation traffic pattern of using the Salt River/freeway 202 as the main approach & departure routes for air traffic seems to have become a lot looser than when we first moved here in 1986. We are now having large aircraft out of Sky Harbor go over our heads. Helicopters heading for the hospitals is one thing, large helicopters for military training and passenger jumbo jets are another matter.
    The combination of a busy airport with capacity enhancements accomplished through area navigation (RNAV) departure routes and dependent parallel approach paths with three runways after 2000, and demand for transition routing through the airport's airspace to access smaller airports, helipads and military facilities in the Phoenix metropolitan area has created a more congested and complicated environment for air traffic.

36. We know the traffic at Sky Harbor is increasing, & so is the traffic into Gateway in east Mesa/Gilbert. But the solution to that traffic needs to be solved by either building another airport between Phoenix & Tucson or outside metropolitan sprawl somewhere or by increasing traffic into the smaller airports such as Scottsdale. The solution should NOT lie in allowing large aircraft deviate pathways over residential neighborhoods.
    The need for additional commercial airport capacity typically emerges during high growth periods and the last state review of possible additional reliver airports capacity in the 2008 Arizona State Aviation System Plan. Scottsdale Airport is classified as a reliever airport with air taxi operations.
37. I live one block north of Warner Road and 1/4 mile east of Rural Road. This is directly under the arrival path for aircraft on downwind for Runway 25 at Sky Harbor. It is also on the departure route for aircraft after they have take-off and turn to the East. Arriving aircraft (at approximately 6,000ft). On occasion some arrivals will cut their flight path a little short and they fly slightly north of my property, but these are few and far between. The only noise I get are aircraft that come from the west and are on base leg to land at the Stellar Air Park a couple of miles south of my property. They will turn on to final approach just east of my property.
    Traffic to Stellar and Chandler are routed below the approach paths to Sky Harbor.
38. The amount of military jets that land at Sky Harbor is unbelievable. Things have drastically changed in roughly the past year. A few weeks ago, there were 12 military jets that landed at Sky Harbor within about an hour. The noise is unbearable when outdoors and can cause hearing damage.
    Sky Harbor is used by military fighter jets when Luke AFB is closed, and the jets need to refuel after a training mission to get back to base. The high frequency of fighter jets taking off over Tempe, had to do with repositioning Navy jets to an aircraft carrier.
39. I don't mind the commercial and cargo jets at all, but the military jets are so loud and way too frequent. I don't think people who live outside the flight path, or people who regulate this, truly understand how different it is to have a fighter jet or 12 fly over your house at that low of an altitude.
    F-18 jets that use afterburners on take-off can reach single event noise in downtown areas of Tempe that exceed 100 dbl.
40. I think it is silly that Tempe seems to be so anti- Sky Harbor Airport. It is the state's largest economic engine and it brings tons of tourism to Tempe. Can't this group work with the airport and not against it?
    Tempe benefits from its close location to Sky Harbor, both in terms of the airport as an employer for Tempe residents, but also for travel and ease of access to events held in Tempe.
41. Who is this an issue for? Is it complaints from the new (and anticipated/under construction) development near downtown and Tempe town lake, or is it residents of Tempe? Is this for developers? More public information is needed so residents can understand the source of these concerns.
    Aircraft noise complaints received by the City of Tempe through Tempe311 are filed by residents, and primarily residents living in single family homes.

GPS Waypoint Maps

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ECLPS
BNYRD
FYRBD
BRDEY
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Typical Climb Profiles in use at PHX

Since the first 1000 ft of climb is safety critical and it within the airport area, it does not involve flight over Tempe communities.

The segment from 1000 ft AGL to 10,000 ft MSL is what mainly concerns noise abatement and is dealt with slightly differently by different airlines and with different equipment.

Southwest B 737:
At 1 000' set climb power and set 10° nose up
Flaps up on schedule.
Speed 210 kts if not yet going in the direction of the flight.
Speed 250 once RNAV is engaged or if proceeding in the direction of the flight.
At 1 0,000' accelerate to enroute climb speed.

American B737:
At 1 000' set climb power and 10° nose up.
Accelerate to 21 0 and clean up flaps on schedule.
When flaps are clean accelerate to 250 kts.
At 1 0,000' accelerate to enroute climb speed.

American Airbus:
At 1000' reduce pitch 2° and set climb power.
Flaps up on schedule.
When clean and reaching 250 kts increase pitch to not exceed 250 kts.
At 10,000' accelerate to enroute climb speed.

In each case, the primary concern is safety, and these- procedures get the aircraft up and away from the ground as quickly as practical. In Tempe airspace there are no restrictions that keep departures on a fixed altitude before being cleared for higher altitudes, which is of course the very essence of noise abatement; to get the source of noise as far away as possible. What this means to us is that the tool we have for effective noise abatement is the routing of aircraft.

Air Carrier Jet Engine Failure Modes

Airline safety has long used the technique of focusing on the most egregious elements in the flight process.

The two most affected elements in the process have always been takeoff and landing.

The two most significant factors during those times are aircrew and mechanical.
The more complicated the process of takeoff or landing becomes, the more chance there is of aircrew error and of mechanical failure.
Simple procedures are more reliable.
Simple demands on machinery are more reliable.

Overall the safety record far exceeds driving on the street.
But it is still possible to find weak links.

In the last 10 years:
Of all technical failures on jet airliners, 12% are engines.
Of that, power loss is 22%.
Of that, 50% occurs during takeoff and initial climb.

It is an extremely small risk overall, but the worst time to put complications on the machinery and aircrew is takeoff and initial climb.

Drastic throttle movements such as imposed at Orange County John Wayne Airport with full power take-off followed by a cut engine power by up to 15 percent put added opportunities for fuel control unit failures and draw the attention of the aircrew to the instrument panel when they should be watching outside.

Such impositions do not add to safety.